

CLAIMS:

1. A security tag, comprising
a tag housing;
a tack body; and
a linear clamp disposed within said tag housing having a slot to retain said tack body,
5 and to move in a substantially linear direction in response to a force to release said tack body
from said slot.
2. The security tag of claim 1, wherein said linear clamp comprises:
a clamp body;
a spring arm attached to a first edge of said clamp body; and
a tack retaining body to retain said tack body.
3. The security tag of claim 2, wherein said tack retaining body comprises a first jaw and
a second jaw, with each jaw terminating in spaced facing edges, said spaced facing edges
forming said slot and a jaw open area in said clamp body.
4. The security tag of claim 3, wherein said jaws extend from a common second edge of
said clamp body.
5. The security tag of claim 3, wherein said jaws are integrally formed with said clamp
body.
6. The security tag of claim 3, wherein said tack body comprises at least one first portion
and at least one second portion, said first and second portions having first and second
diameters, respectively, with said second diameter smaller than said first diameter.
7. The security tag of claim 6, wherein said slot has a width approximate to said second
diameter, wherein said jaws move from a first position to a second position to accommodate
said first portions, and from second position to said first position to retain said second
portions.

8. The security tag of claim 3, wherein a side of said clamp body forms a first plane, and a side of said tack retaining body forms a second plane substantially parallel to said first plane.
9. The security tag of claim 3, wherein a first portion of said spaced facing edges are substantially parallel to form said slot, with a first end of said slot forming a curve approximating a curve for said tack body, and said second end of said slot forming a release section opening into said jaw open area.
10. The security tag of claim 9, wherein said tag body includes a channel for a detachment probe, said channel configured to accommodate movement of said detachment probe to contact said first edge of said linear clamp.
11. The security tag of claim 10, wherein said detachment probe provides force against said second edge to move said linear clamp from a first position to a second position in said linear direction.
12. The security tag of claim 11, wherein said linear clamp moves from said second position to said first position when said force is terminated.
13. The security tag of claim 3, wherein a second portion of said spaced facing edges are straight to form said jaw open area, with a first distance between a first end of said jaw open area being less than a second distance between a second end of said jaw open area.
14. The security tag of claim 1, wherein said tag housing comprises a top half and a bottom half, with said bottom half having a guide to assist movement of said linear clamp in said linear direction.
15. The security tag of claim 14, wherein said bottom half includes an abutment to bias said spring arm in response to movement of said linear clamp in said linear direction, said abutment being disposed approximately in line with said force.

16. The security tag of claim 2, wherein said spring arm comprises:
a spring arm body that extends along said first edge of said clamp body; and
a curved joint joining said spring arm body to one end of said clamp body.
17. The security tag of claim 2, wherein said spring arm moves from a first position to a second position in response to said force, and moves from said second position to said first position when said force terminates.
18. The security tag of claim 3, further comprising a bridge across said jaw open area.
19. The security tag of claim 18, wherein said tag body includes a channel for a detachment probe, said channel configured to accommodate movement of said detachment probe to contact said bridge.
20. The security tag of claim 19, wherein said detachment probe provides force against said bridge to move said linear clamp from a first position to a second position in said linear direction.
21. The security tag of claim 20, wherein said linear clamp moves from said second position to said first position when said force is terminated.
22. The security tag of claim 3, wherein a first portion of said spaced facing edges are substantially straight to form said slot, with a first end of said slot having a first width and forming a curve approximating a curve for said tack body, and a second end of said slot forming a release section opening into said jaw open area, with said release section having a
5 second width smaller than said first width.
23. The security tag of claim 22, wherein said tag housing comprises a top half and a bottom half, with said bottom half having a guide to assist movement of said linear clamp in said linear direction.

24. The security tag of claim 23, wherein said bottom half includes an abutment to bias said spring arm in response to movement of said linear clamp in said linear direction, said abutment being disposed to generate a clockwise moment approximately equal and opposite to a counterclockwise moment caused by said slot.
25. A linear clamp for a security tag, comprising:
a clamp body;
a spring arm attached to a first edge of said clamp body; and
a tack retaining body having a slot to retain a tack body, and to release said tack body
5 from said slot in response to a force applied in a substantially linear direction.
26. The linear clamp of claim 25, wherein said tack retaining body comprises a first jaw and a second jaw, with each jaw terminating in spaced facing edges, said spaced facing edges forming said slot and a jaw open area in said clamp body.
27. The linear clamp of claim 26, wherein said jaws extend from a common second edge of said clamp body.
28. The linear clamp of claim 26, wherein said jaws are integrally formed with said clamp body.
29. The linear clamp of claim 26, wherein a side of said clamp body forms a first plane, and a side of said tack retaining body forms a second plane substantially parallel to said first plane.
30. The linear clamp of claim 26, wherein a first portion of said spaced facing edges are substantially parallel to form said slot, with a first end of said slot forming a curve approximating a curve for said tack body, and said second end of said slot forming a release section opening into said jaw open area.
31. The linear clamp of claim 26, wherein said second edge of said tack retaining body receives force to move said linear clamp from a first position to a second position in said linear direction.

32. The linear clamp of claim 31, wherein said tack body moves into said jaw open area when said linear clamp is in said second position, thereby releasing said tack body from said tack retaining body.

33. The linear clamp of claim 32, wherein said linear clamp moves from said second position to said first position when said force is terminated.

34. The linear clamp of claim 26, wherein a second portion of said spaced facing edges are straight to form said jaw open area, with a first distance between a first end of said jaw open area being less than a second distance between a second end of said jaw open area.

35. The linear clamp of claim 31, wherein said spring arm comprises:
a spring arm body that extends along said first edge of said clamp body; and
a curved joint joining said spring arm body to one end of said clamp body.

36. The linear clamp of claim 35, wherein said spring arm moves from a first position to a second position in response to said force, and moves from said second position to said first position when said force terminates.

37. The linear clamp of claim 36, wherein said spring arm is biased approximately in line with said force.

38. The linear clamp of claim 26, further comprising a bridge across said jaw open area.

39. The linear clamp of claim 38, wherein said bridge receives force to move said linear clamp from a first position to a second position in said linear direction.

40. The linear clamp of claim 39, wherein said tack body moves into said jaw open area when said linear clamp is in said second position, thereby releasing said tack body from said tack retaining body.

41. The linear clamp of claim 40, wherein said linear clamp moves from said second position to said first position when said force is terminated.
42. The linear clamp of claim 26, wherein a first portion of said spaced facing edges are substantially straight to form said slot, with a first end of said slot having a first width and forming a curve approximating a curve for said tack body, and a second end of said slot forming a release section opening into said jaw open area, with said release section having a
5 second width smaller than said first width.
43. The linear clamp of claim 42, wherein a second edge of said tack retaining body receives force to move said linear clamp from a first position to a second position in said linear direction.
44. The linear clamp of claim 43, wherein said tack body moves into said jaw open area when said linear clamp is in said second position, thereby releasing said tack body from said tack retaining body.
45. The linear clamp of claim 44, wherein said linear clamp moves from said second position to said first position when said force is terminated.
46. The linear clamp of claim 42, wherein said spring arm comprises:
a spring arm body that extends along said first edge of said clamp body; and
a curved joint joining said spring arm body to one end of said clamp body.
47. The linear clamp of claim 46, wherein said spring arm moves from a first position to a second position in response to said force, and moves from said second position to said first position when said force terminates.
48. The linear clamp of claim 47, wherein said spring arm is biased to generate a clockwise moment approximately equal and opposite to a counterclockwise moment caused by said slot.

49. A security system, comprising:
a security tag having a linear clamp with a slot to retain a tack body;
a monitoring system to detect said security tag; and
an alert system to communicate an alert if said monitoring system detects said
5 security tag.
50. The security system of claim 49, further comprising a detachment device to detach
said security tag from an item.
51. The security system of claim 50, wherein said detachment device includes a
detachment probe.
52. The security system of claim 51, wherein said security tag further comprises a tag
housing and a tack body, with said linear clamp disposed within said tag housing to retain
said tack body, and said linear clamp to move in a substantially linear direction in response to
force provided by said detachment probe to release said tack body from said slot.